

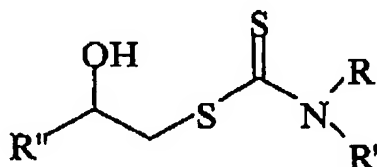
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Appl. No. 10/067,978
Atty. Docket No. EP-7532

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of all claims in the application.

Listing of Claims:

1. (Currently amended) An oil-based lubricant composition comprising a molybdenum source; a hydroxy-substituted dithiocarbamate having the formula:



wherein R and R' may be independently hydrogen or alkyl with the requirement that at least one of R or R' is C_4 to C_{22} alkyl, R'' is $\text{R}''' \text{XCH}_2$, $\text{R}''' \text{O}(\text{C}=\text{O})\text{CH}_2\text{XCH}_2$, or $\text{R}''' \text{O}(\text{C}=\text{O})\text{CH}_2\text{CH}_2\text{XCH}_2$ where R''' is C_1 to C_{22} alkyl, and X is sulfur (S) or oxygen (O); and optionally, a phosphorous source.

2. (Canceled)

3. (Previously presented) The composition of claim 1, wherein R and R' are alkyl.

Claims 4-5. (Canceled)

6. (Previously presented) The composition of claim 1, wherein R'' is $\text{R}''' \text{XCH}_2$.

7. (Previously presented) The composition of claim 1, wherein R'' is $\text{R}''' \text{O}(\text{C}=\text{O})\text{CH}_2\text{XCH}_2$.

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8. (Previously presented) The composition of claim 1, wherein R" is $R'''O(C=O)CH_2CH_2XCH_2$.
9. (Original) The composition of claim 6, wherein X is oxygen (O).
10. (Original) The composition of claim 6, wherein X is sulfur (S).
11. (Original) The composition of claim 7, wherein X is oxygen (O).
12. (Original) The composition of claim 7, wherein X is sulfur (S).
13. (Original) The composition of claim 8, wherein X is oxygen (O).
14. (Original) The composition of claim 8, wherein X is sulfur (S).
15. (Original) The composition of claim 1, wherein the molybdenum source is selected from the group consisting of molybdenum carboxylates, molybdenum complexes of organic amides, molybdenum complexes of organic amines, and molybdenum dialkyldithiocarbamates.
16. (Original) The composition of claim 1, wherein the molybdenum source comprises a molybdenum carboxylate.
17. (Original) The composition of claim 1, wherein the molybdenum source comprises a molybdenum complex of an organic amide.
18. (Canceled)
19. (Original) The composition of claim 1, wherein the molybdenum source comprises a molybdenum dialkyldithiocarbamate.

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20. (Previously presented) The composition of claim 1, wherein the phosphorous source is present.
21. (Original) The composition of claim 20, wherein the phosphorous source is selected from zinc dialkyldithiophosphates, alkyl phosphites, aryl phosphites, mixed alkyl/aryl phosphites, alkyl thiophosphites, aryl thiophosphites, mixed alkyl/aryl thiophosphites alkyl phosphates, aryl phosphates, mixed alkyl/aryl phosphates, metal or amine salts of phosphorodithioic acids, ashless dialkyldithiophosphates, ashless diaryldithiophosphates, and mixed ashless alkyl/aryldithiophosphates.
22. (Original) The composition of claim 20, wherein the phosphorous source comprises zinc dialkyldithiophosphate.
23. (Original) The composition of claim 20, wherein the phosphorous source comprises zinc diethyl/diisopropyldithiophosphate.
24. (Original) The composition of claim 20, wherein the hydroxy-substituted dithiocarbamate is present in an amount of from about 0.05 to about 1.5 weight percent, the molybdenum source is present in an amount to deliver from about 25 to about 1500 ppm molybdenum, and the phosphorus source is present in an amount to deliver from about 250 to about 1000 ppm phosphorus.
25. (Canceled)
26. (Original) A lubricating oil comprising a major amount of a base oil of lubricating viscosity, and a minor amount of a composition of claim 1.
27. (Previously presented) The lubricating oil of claim 26, wherein the composition is present in an amount of from about 0.25 to about 2.5 percent by weight of the lubricating oil.

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28. (Original) The composition of claim 1, wherein the hydroxy-substituted dithiocarbamate is present in an amount of from about 0.05 to about 1.5 weight percent, and the molybdenum source is present in an amount to deliver from about 25 to about 1500 ppm molybdenum.

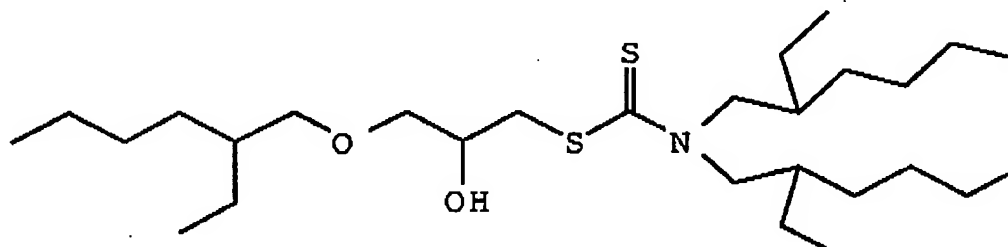
Claims 29-36. (Canceled)

37. (Original) The lubricating oil of claim 26, wherein the base oil of lubricating viscosity is selected from animal oils, vegetable oils, mineral lubricating oils, solvent or acid treated mineral oils, oils derived from coal or shale, hydrocarbon oils, halo-substituted hydrocarbon oils, alkylene oxide polymers, esters of dicarboxylic acids, esters of polyols, esters of phosphorus-containing acids, polymeric tetrahydrofurans, silicon-based oils, and mixtures thereof.

38. (Original) The compound 3-(2-ethylhexyloxy)-2-hydroxypropyl bis(2-ethylhexyl) carbamodithioate.

39. (Currently amended) The compound 3-(2-ethylhexyloxy)-2-hydroxypropyl dibutylcarbamodithioate wherein said compound is obtained by contacting in substantially equimolar proportions: octyl glycidyl ether, dibutylamine, and carbon disulfide.

40. (Original) A compound with the following chemical formula:



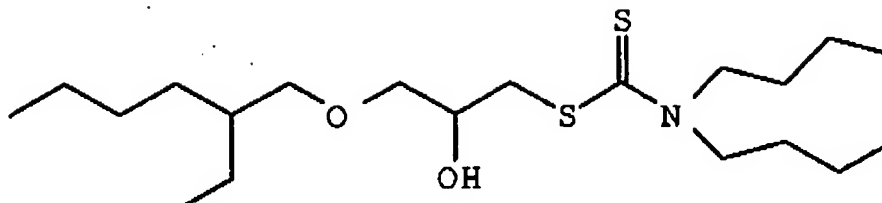
41. (Canceled)

42. (Currently amended) A lubricating composition comprising a compound with the following chemical formula:

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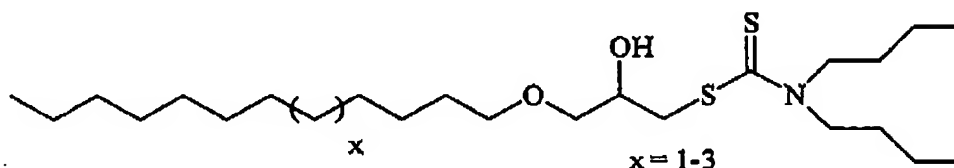
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wherein said compound is obtained by contacting in substantially equimolar proportions: octyl glycidyl ether, dibutylamine, and carbon disulfide.

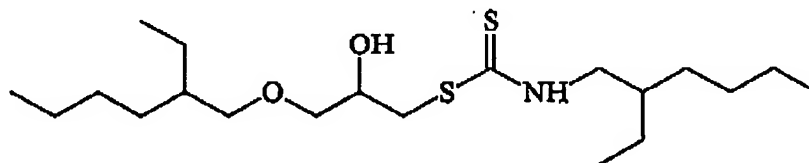
Claims 43-46. (Canceled)

47. (Currently amended) A lubricating composition comprising a compound with the following chemical formula:



wherein said compound is obtained by contacting in substantially equimolar proportions: (1) an ether selected from the group consisting of dodecyl glycidyl ether, tridecyl glycidyl ether, and tetradecyl glycidyl ether; (2) dibutylamine; and (3) carbon disulfide.

48. (Original) A lubricating composition comprising a compound with the following chemical formula:



49. (Canceled)

50. (Previously presented) The composition of claim 1, wherein the molybdenum source

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comprises an organo-molybdenum compound.

51. (Previously presented) The composition of claim 20, wherein the molybdenum source comprises an organo-molybdenum compound.

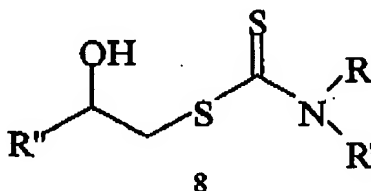
52. (Previously presented) The composition of claim 20, wherein the molybdenum source comprises an organo-molybdenum compound present in an amount to deliver 25 ppm to 1500 ppm molybdenum, and the hydroxy-substituted dithiocarbamate is present in an amount to deliver 100 ppm to 3000 ppm sulfur, the phosphorus source is present in an amount to deliver about 500 ppm to less than 1000 ppm phosphorus.

53. (Previously presented) The composition of claim 20, wherein the molybdenum source comprises an organo-molybdenum compound present in an amount to deliver from 25 ppm to 1500 ppm molybdenum, and the hydroxy-substituted dithiocarbamate is present in an amount to deliver 100 ppm to 2250 ppm sulfur, the phosphorus source is present in an amount to deliver about 500 ppm to less than 1000 ppm phosphorus.

54. (Previously presented) The composition of claim 20, wherein the molybdenum source comprises an organo-molybdenum compound present in an amount to deliver from 25 ppm to 1500 ppm molybdenum, and the hydroxy-substituted dithiocarbamate is present in an amount to deliver 100 ppm to 1500 ppm sulfur, the phosphorus source is present in an amount to deliver about 500 ppm to less than 1000 ppm phosphorus.

55. (Previously presented) A crankcase oil comprising the composition of claim 20.

56. (Currently amended) A composition resulting from contacting a molybdenum source; a hydroxy-substituted dithiocarbamate having the formula:



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wherein R and R' may be independently hydrogen or alkyl with the requirement that at least one of R or R' is C_1 to C_{22} alkyl, R" is $R'''XCH_2$, $R'''O(C=O)CH_2XCH_2$, or $R'''O(C=O)CH_2CH_2XCH_2$ where R" is C_1 to C_{22} alkyl, and X is sulfur (S) or oxygen (O); and a phosphorous source.

57. (Previously presented) The composition of claim 56, wherein the molybdenum source comprises an organo-molybdenum compound.

58. (Previously presented) The composition according to claim 1, wherein the hydroxy-substituted dithiocarbamate comprises the reaction product produced by combining in substantially equimolar proportions, and in a process carried out in the absence of a reaction solvent: an epoxide, a primary or secondary amine, and carbon disulfide.

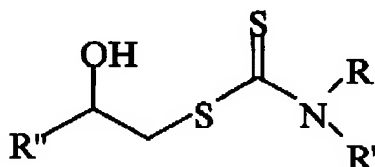
59. (Previously presented) The composition according to claim 58, wherein the epoxide is selected from the group consisting of methyl glycidyl thioether, ethyl glycidyl thioether, propyl glycidyl thioether, butyl glycidyl thioether, pentyl glycidyl thioether, hexyl glycidyl thioether, cyclohexyl glycidyl thioether, heptyl glycidyl thioether, octyl glycidyl thioether, nonyl glycidyl thioether, decyl glycidyl thioether, undecyl glycidyl thioether, dodecyl glycidyl thioether, tridecyl glycidyl thioether, tetradecyl glycidyl thioether, pentadecyl glycidyl thioether, hexadecyl glycidyl thioether, heptadecyl glycidyl thioether, octadecyl glycidyl thioether, isomers thereof and mixtures thereof.

60. (Previously presented) The composition according to claim 58, wherein the epoxide is selected from the group consisting of methyl glycidyl ether, ethyl glycidyl ether, propyl glycidyl ether, butyl glycidyl ether, pentyl glycidyl ether, hexyl glycidyl ether, cyclohexyl glycidyl ether, heptyl glycidyl ether, octyl glycidyl ether, nonyl glycidyl ether, decyl glycidyl ether, undecyl glycidyl ether, dodecyl glycidyl ether, tridecyl glycidyl ether, tetradecyl glycidyl ether, pentadecyl glycidyl ether, hexadecyl glycidyl ether, heptadecyl glycidyl ether, octadecyl glycidyl ether, isomers thereof and mixtures thereof.

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61. (Previously presented) The composition of claim 1, wherein the hydroxy-substituted dithiocarbamate is present in an amount sufficient to deliver from 100 to 1500 ppm sulfur.

62. (Currently amended) An oil-based additive concentrate comprising a molybdenum source; a hydroxy-substituted dithiocarbamate having the formula:

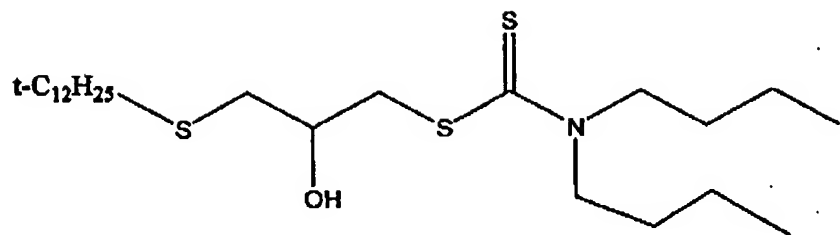


wherein R and R' may be independently hydrogen or alkyl with the requirement that at least one of R or R' is C₄ to C₂₂ alkyl, R'' is R'''XCH₂, R'''O(C=O)CH₂XCH₂, or R'''O(C=O)CH₂CH₂XCH₂ where R''' is C₁ to C₂₂ alkyl, and X is sulfur (S) or oxygen (O); and, optionally, a phosphorous source.

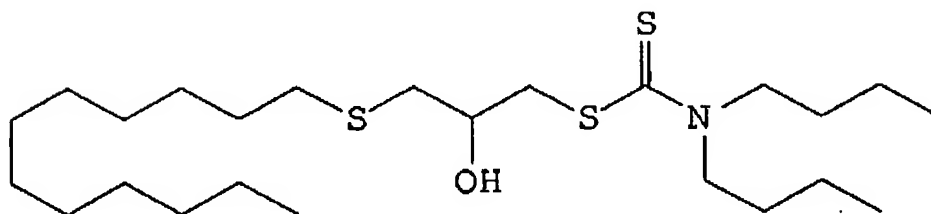
63. (Currently amended) A lubricating composition comprising a molybdenum source, and a hydroxy-substituted dithiocarbamate compound having a formula selected from the group consisting of:

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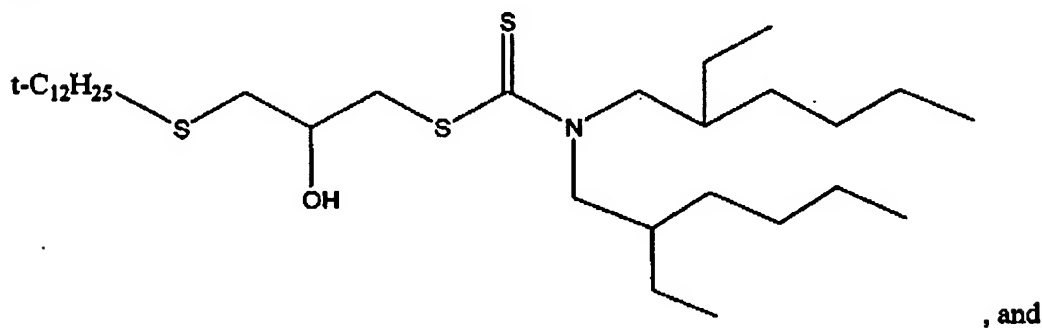
(a)



(b)

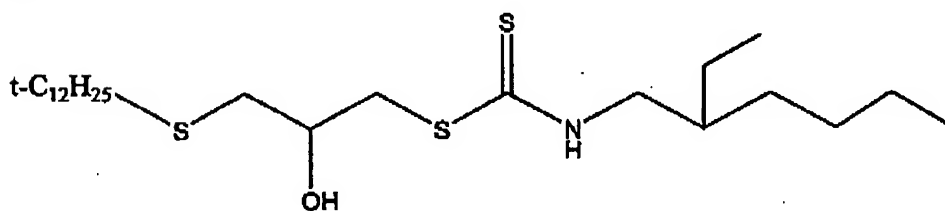


(c)



, and

(d)



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wherein (a) and (b) are obtained by contacting in substantially equimolar proportions: a dodecyl glycidyl ether, dibutylamine, and carbon disulfide.